



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/332,264	06/11/1999	THOMAS HUNTINGTON WOOD	WOOD27/56115	2709
26291	7590	01/26/2004	EXAMINER	
MOSER, PATTERSON & SHERIDAN L.L.P.			LI, SHI K	
595 SHREWSBURY AVE			ART UNIT	
FIRST FLOOR			PAPER NUMBER	
SHREWSBURY, NJ 07702			2633	

DATE MAILED: 01/26/2004

14

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/332,264

Applicant(s)

WOOD, THOMAS HUNTINGTON

Examiner

Shi K. Li

Art Unit

2633

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 28 October 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1,2,4,5 and 7-15 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,2,4,5 and 7-15 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. §§ 119 and 120**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                             | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____  |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)         | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____                                    |

**DETAILED ACTION**

***Claim Rejections - 35 USC § 103***

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
2. Claims 1-2, 4-5, 7, 10 and 12-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bohn et al. (U.S. Patent 5,311,344) in view of Lewin et al. (U.S. Patent 6,587,476 B1).

Bohn et al. discloses in FIG. 1 a data communication system comprising a head-end 2, a splitter 3, a first network unit 5<sub>1</sub> and a second network unit 5<sub>2</sub>. The difference between Bohn et al. and the claimed invention is that (a) Bohn et al. does not include an Ethernet adapter circuit in the head-end; and (b) Bohn et al. does not teach the Ethernet interface for providing the upstream data.

Ethernet is a popular network interface and can be found in most computers for interconnecting with other computers. Lewin et al. emphasizes the fact in "Background of the Invention" Section and teaches in FIG. 1 the use of 10 BaseT Ethernet interfaces for receiving data from subscribers. Lewin et al. also teaches in FIG. 7 the use of an Ethernet switch to combine the data from individual subscribers. One of ordinary skill in the art would have been motivated to combine the teaching of Lewin et al. with the data communication system of Bohn et al. to use Ethernet interface for receiving subscriber data because Ethernet interfaces are popularly found in home and office computers, and to include a Ethernet switch in the head-end for combining data from individual subscribers because the Ethernet switch provides high bandwidth duplex data communication for each subscriber and allows the interconnection to

Art Unit: 2633

other networks. In using Ethernet switch, there is no collision between the different ports. Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to use Ethernet interface for receiving upstream data and include a Ethernet switch in the head-end for combining data from individual subscribers and interconnecting to other networks, as taught by Lewin et al., in the data communication system of Bohn et al. because Ethernet interfaces are popularly equipped in most home and office computers.

Regarding claim 2, Bohn et al. uses subcarrier technology as described in col. 4, lines 39-65.

Regarding claim 4, Bohn et al. uses optical fibers for connecting the network units and the splitter. Therefore the network units are optical network units.

Regarding claim 5, the modified data communication system of Bohn et al. and Lewin et al. would use Ethernet data format, which is a packet format, for the data.

Regarding claims 7 and 12, the modified data communication system of Bohn et al. and Lewin et al. would include an Ethernet adapter, a modulator (VCO 57 of FIG. 2 of Bohn et al.) and a transmitter (laser 55 of FIG. 2 of Bohn et al.).

Regarding claim 10, Bohn et al. suggests the use of FSK in col. 4, line 61.

Regarding claim 13, Bohn et al. includes in FIG. 1 downstream data to the network units.

Regarding claim 14, Bohn et al. suggests in FIG. 1 that the head-end includes a transmitter 23, a receiver 24 and a wavelength-division multiplexing device (coupler 21). Bohn et al. also suggests in FIG. 2 that each network unit includes a transmitter 55, a receiver 52 and a wavelength-division multiplexing device 51.

Regarding claim 15, Bohn et al. suggests in FIG. 1 that the receiver in the head-end and the transmitter in the network units operate at 1.5  $\mu\text{m}$  and the transmitter in the head-end and the receivers in the network units operate at 1.3  $\mu\text{m}$ .

3. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bohn et al. and Lewin et al. as applied to claims 1-2, 4-5, 7, 10 and 12-15 above, and further in view of Feldman (U.S. Patent 6,137,607).

Bohn et al. and Lewin et al. have been discussed above in regard to claims 1-2, 4-5, 7, 10 and 12-15. The difference between the modified data communication system of Bohn et al. and Lewin et al. and the claimed invention is that Bohn et al. and Lewin et al. do not include a bias control circuit. Feldman et al. describes the operation of the bias control 204 in col. 2, lines 60-67 such that the bias control circuit shuts off the laser (transmitter) in the absence of user data. One of ordinary skill in the art would have been motivated to combine the teaching of Feldman et al. with the modified data communication system of Bohn et al. and Lewin et al. because the bias control circuit eliminates optical beat interference (OBI) as described in col. 2, lines 60-61 of Feldman. Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the bias control circuit, as taught by Feldman et al., into the modified system of Bohn et al. and Lewin et al. to eliminate optical beat interference.

4. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bohn et al. and Lewin et al. as applied to claims 1-2 above, and further in view of Sorrells et al. (U.S. Patent 6,542,722 B1).

Bohn et al. and Lewin et al. have been discussed above in regard to claims 1-2, 4-5, 7, 10 and 12-15. The difference between the modified data communication system of Bohn et al. and

Art Unit: 2633

Lewin et al. and the claimed invention is the modulation method for upstream data. Bohn et al. suggests the use of FSK while the claimed invention uses QPSK. Sorrells et al. teaches in col. 11, lines 49-60 techniques for modulation. These different techniques for modulation are considered as equivalents and the choice of one technique over the others depends on the particular application, e.g., the number of subscribers, data rate and cost. Where the claimed differences involve the substitution of interchangeable or replaceable equivalents and the reason for the selection of one equivalent for another was not to solve an existent problem, such substitution has been judicially determined to have been obvious. See *In re Ruff*, 118, USPQ 343 (CCPA 1958). Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to use QPSK as a modulation method, as taught by Sorrells et al., in the modified system of Bohn et al. and Lewin et al. as a design choice based on the particular application.

5. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bohn et al. and Lewin et al. as applied to claims 1-2 above, and further in view of Zirngibl (U.S. Patent 5,550,666).

Bohn et al. and Lewin et al. have been discussed above in regard to claims 1-2, 4-5, 7, 10 and 12-15. The difference between the modified data communication system of Bohn et al. and Lewin et al. and the claimed invention is the wavelength for the upstream data. Zirngibl teaches in col. 2, line 39-41 the use of 1.3  $\mu\text{m}$  wavelength for upstream data. Certain optical fiber has a minimal absorption loss around 1.3  $\mu\text{m}$ . Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to use 1.3  $\mu\text{m}$  wavelength for upstream data, as

Art Unit: 2633

taught by Zirngibl, in the modified system of Bohn et al. and Lewin et al. because certain optical fiber has a minimal absorption loss at wavelength around 1.3  $\mu\text{m}$ .

*Response to Arguments*

6. Applicant's arguments filed 28 October 2003 have been fully considered but they are not persuasive.

Applicant argues that popularity of a given feature cannot be used as suggestion or motivation to combine the teachings. The Examiner disagrees. The popularity of Ethernet in computer equipment creates a need for service provider to use the Ethernet interface for network access connection so that no additional special interface card is needed. From another view, it is a compatibility issue. Since Ethernet interface card supports high speed and is inexpensive, it has become a standard interface for PCs. Therefore it is desirable to allow a PC of a residential subscriber to use the Ethernet interface card to access the network in a similar way a computer would be if connected to a LAN in campus or office. Such motivation is clearly taught by Lewin et al. in col. 1, lines 12-24. That is, the suggestion is in the references themselves.

Applicant argues that there is no reasonable expectation of success indicated in a combination of Ethernet into the system of Bohn et al. The Examiner disagrees and provides the following clarification. WDM, TDM and subcarrier (FDM) are multiplexing technologies while Ethernet is an interconnection standard. Interconnection standard relates to the connecting of a piece of equipment, such as a computer or terminal, to another piece of equipment or network, such as switch or multiplexer. On the other hand, multiplexing technologies are used to combine signals obtained from a plurality of pieces of equipment so that signals from the plurality of pieces of equipment can share a common physical channel, in this case a fiber. The multiplexer,

Art Unit: 2633

whether using TDM, WDM or FDM, must have physical connections for connecting to each of this plurality of pieces of equipment. Bohn provides teaching for multiplexing technologies while Lewin et al. provides teaching for the connecting standard. These two are not exclusive, i.e., using WDM, FDM or TDM does not exclude the use of Ethernet for connection standard.

In conclusion, the Applicant's arguments related to the references Bohn et al. and Lewin et al. are not persuasive and the Examiner maintains the 35 U.S.C. 103(a) rejection of claims 1-2, 4-5, 7, 10 and 12-15 as being unpatentable over Bohn et al. in view of Lewin et al. The Examiner also maintains the rejections of claim 8 as being unpatentable over Bohn et al. and Lewin et al. and further in view of Feldman, of claim 9 as being unpatentable over Bohn et al. and Lewin et al. and further in view of Sorrells et al., of claim 11 as being unpatentable over Bohn et al. and Lewin et al. and further in view of Zirngibl.

***Conclusion***

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.



Application/Control Number: 09/332,264  
Art Unit: 2633


Page 8

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shi K. Li whose telephone number is 703 305-4341. The examiner can normally be reached on Monday-Friday (8:30 a.m. - 5:00 p.m.).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on 703 305-4729. The fax phone number for the organization where this application or proceeding is assigned is 703 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703 305-3900.

skl

  
JASON CHAN  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2600